

Appl. No. ⁰⁹08/913,574

Reply to Office Action of March 8, 2004

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A low VOC clear coating composition comprising isocyanate, epoxy compound and melamine components wherein said isocyanate component comprises an aliphatic polyisocyanate having an average of 2 to 6 isocyanate functionalities.
2. (Original) The composition of claim 1 wherein said composition further comprises a catalyst.
3. (Original) The composition of claim 2 wherein said catalyst is selected from the group consisting of an organotin catalyst, acid catalyst and combinations thereof.
4. (Original) The composition of claim 3 wherein said organotin catalyst is selected from the group consisting of dibutyltin diacetate, dibutyltin dilaurate, dibutyltin oxide, dibutyltin bis(acetoacetate) and combinations thereof.
5. (Original) The composition of claim 3, wherein said acid catalyst is selected from the group consisting of phenyl acid phosphate, butyl acid phosphate, octyl acid phosphate, dodecylbenzenesulfonic acid, para-toluenesulfonic acid, dinonylnaphthalenesulfonic acid and combinations thereof.
6. (Original) The composition of claim 3 or 5, wherein said acid catalyst is blocked with an amine.
7. (Original) The composition of claim 6, wherein said amine is dimethyloxazolidine, 2-amino-2-methyl-1-propanol, di(2-hydroxyethyl)amine or a combination thereof.

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8. (previously presented) The composition of claim 2,3,4, or 5 wherein said composition comprises about 0.001 weight percent to about 3.0 weight percent of catalyst, all percentages based on the total weight of composition solid.
9. (Original) The composition of claim 1 further comprises a polyhydroxyl functional compound.
10. (Original) The composition of claim 9 wherein said polyhydroxyl functional compound is a polycarbonate polyol.
11. (Original) The composition of claim 9 or 10 wherein said polyhydroxyl functional compound comprises from about 0.5 weight percent to about 15 weight percent of the composition.
12. (previously presented) The composition of claim 1 further comprises a non-aqueous dispersion resin.
13. (Original) The composition of claim 1, wherein said epoxy compound is selected from the group consisting of a polyglycidyl ester of an acid, a polyfunctional aliphatic epoxy compound, a cycloaliphatic epoxy compound, a polyfunctional cycloaliphatic epoxy compound or combinations thereof.
14. (Original) The composition of claim 1 or 13, wherein said epoxy compound is a di or polyglycidyl ester of a di or polycarboxylic acid.
15. (previously presented) The composition of claim 1, or 13, wherein said epoxy compound comprises from about 10 weight percent to about 40 weight percent of the composition.
16. (Original) The composition of claim 1, wherein said melamine is a fully alkylated melamine-formaldehyde resin.

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17. (Original) The composition of claim 1, wherein said melamine is a partially alkylated melamine-formaldehyde resin.
18. (Original) The composition of claim 1, 16 or 17, wherein said melamine compound comprises from about 10 weight percent to about 40 weight percent of the composition.
19. (previously presented) The composition of claim 1 further comprises ultraviolet light absorbers, light stabilizers or a combination thereof.
20. (Original) The composition of claim 1, wherein said aliphatic polyisocyanate is selected from the group consisting of trimers of hexamethylene diisocyanate, isophome diisocyanate, or meta-tetramethylene diisocyanate and combinations thereof.
21. (Original) The composition of claim 1 or 20, wherein said aliphatic polyisocyanate is blocked.
22. (previously presented) The composition of claim 1, or 20, wherein aliphatic polyisocyanate is blocked by reacting with an aliphatic mono-alcohol.
23. (previously presented) The composition of claim 1, or 20, wherein said aliphatic polyisocyanate comprises from about 35 weight percent to about 70 weight percent of the composition.
24. (Original) The composition of claim 1 further comprises a solvent.
25. (Original) The composition of claim 1, wherein said composition has a solids content of greater than 65 weight percent.
26. (Original) A composition of claim 1, wherein said composition has a solids content of greater than 80 weight percent.
27. (Original) An article comprising a substrate having a first and a second major surface and a layer of protective coating, the protective coating comprising a hardened composition of claim 1.

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28. (Original) The article of claim 27, wherein said substrate is selected from the group consisting of metal, plastic, wood and rubber.

29. (Original) The article of claim 27, wherein said layer of protective coating has a thickness of about 25 micrometers to about 75 micrometers.

30. (Original) The article of claim 27, wherein said layer of protective coating is acid-resistant.

31. (Original) The article of claim 27, wherein said layer of protective coating is transparent.

32. (Original) The article of claim 27, comprising a layer of electrocoat, primer and a layer of basecoat interposed between the substrate and the layer of protective coating.

33. (currently amended) A process of making a clear coating composition that upon hardening forms a clear protective coating comprising the steps of:

combining an aliphatic polyisocyanate having an average of 2 to 6 isocyanate functionalities an epoxy compound, and melamine.

34. (currently amended) A process of making a clear coating composition that upon hardening forms a protective coating comprising the steps of:

making a first mixture comprising an epoxy, a melamine;
making a second mixture comprising an aliphatic polyisocyanate having an average of 2 to 6 isocyanate functionalities; and
combining the first and second mixtures.

35. (Original) The process of claim 34 wherein said first mixture, second mixture or both mixtures contain a solvent.

36. (currently amended) ~~[The product]~~ A clear coating composition produced by the process of claim 34.

37. (currently amended) A process of making an article comprising the steps of:

applying a clear coating composition comprising an aliphatic polyisocyanate having an average of 2 to 6 isocyanate functionalities, an epoxy compound, and melamine to a substrate; and hardening the composition.

38. (Original) The process of claim 37, wherein said composition is applied by spraying.

39. (previously presented) The composition of claim 6, wherein said composition comprises about 0.001 weight percent to about 3.0 weight percent of catalyst, all percentages based on the total weight of composition solid.

40. (previously presented) The composition of claim 14, wherein said epoxy compound comprises from about 10 weight percent to about 40 weight percent of the composition.

41. (previously presented) The composition of claim 21, wherein aliphatic polyisocyanate is blocked by reacting with an aliphatic mono-alcohol.

42. (previously presented) The composition of claim 21, wherein said aliphatic polyisocyanate comprises from about 35 weight percent to about 70 weight percent of the composition.